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09/901,554	07/09/2001	Albert Calderon		7825

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EXAMINER	
PATEL, VINIT H	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/901,554	CALDERON ET AL.	
	Examiner	Art Unit	
	Vinit H. Patel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-35 and 37-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-35 and 37-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *28 October 2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3, 6-10, 19, 20, 23, 24, 27-32, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon, U.S. Patent No. 5,063,732 ('732), in view of Anwer et al, U.S. Patent No. 4,017,272 ('272).

Regarding claim 1, Calderon '732 discloses a process for producing energy from coal comprising: delivering coal via a packing ram 37 to an accumulator (chamber) 38 where pyrolysis tubes 40 are charged with coal and heated to drive volatile matter out of the coal; the volatile matter (a rich gas) is collected and residual char remaining after the pyrolysis of the coal is discharged into a gasification vessel 47 where gasification vessel 47 receives a supply of an oxidant through tuyeres 48 to gasify the residual char, and slag is discharged through a nozzle 49; a duct 52 is provided to collect the gas produced from the gasification of char, which is known as a lean gas; the lean gas is passed through a cyclone 53 which serves to remove particulate matter (such as slag, a resulting product of gasifying the char, thus the lean gas and slag flow out of the gasification vessel through a common port) from the lean gas prior to its clean up; the rich gas from duct 44 enters a cracker 56 which serves to crack and desulfurize the rich

gas to yield a clean syngas (See Col. 4, lines 33 – 68 and Col. 5, lines 1-41; Figs. 4 and 5).

Calderon, however, does not disclose injecting essentially pure oxygen in such a way as to combust a portion of the coal while maintaining a pressurized reducing atmosphere to yield a rich gas. Calderon discloses the use of pyrolysis to thermally volatize the coal to make a rich gas (See Col. 3, lines 42-42). Anwer et al., discloses a process for gasifying carbonaceous material under selective conditions to produce a gaseous product rich in carbon monoxide and hydrogen (a rich gas) comprising introducing in the gasifier particulate carbonaceous material at a pressure above the pressure of the gasifier, introducing oxygen-containing gas with up to about 50 percent (vol.) of steam, gasifying the carbonaceous material to produce a gaseous reaction product in conjunction with spent char (See Col. 22 lines 10-57). Anwer et al., further discloses the reaction in the gasifier are advantageously conducted under pressure (See Col. 6, lines 64-68). The raw product gas resulting from the gasification reaction has a superficial velocity (thus pressurized), as a function of operating pressure (See Col. 8, lines 29-38).

Accordingly, at the time of the invention, it would have be obvious to a person of ordinary skill in the art to modify Calderon by substituting the coal pyrolysis reaction to make a rich gas and char with the step of partial combustion of coal with oxygen under pressure as disclosed in Anwer et al., for the same purpose to producing a rich gas and char.

Regarding claim 2, Calderon discloses converting syngas to a marketable chemical or fuel. (See Col. 7, lines 25-26; Col. 3, lines 50-54; Col. 9, lines 6-7).

Regarding claim 3, Calderon discloses combusting a low-Btu (lean) gas in a boiler to generate electricity (See Col. 7, lines 39-41).

Regarding claim 6, Calderon discloses the use of compressed air to supply the tuyeres 48 of the gasification vessel 47 (See Col. 5, lines 1-3; Fig. 4). The compressed air is produced by the compressor component 22 of the gas turbine cycle 16. Within the gas turbine cycle, the compressed air from compressor 22 would be exposed to heat generated from the gas turbine cycle 16, therefore pre-heated air would be utilized to gasify the hot char.

Regarding claim 7, Calderon discloses the use of an oxidant, such as air or oxygen, to gasify the hot char (See Col. 4, lines 65-67).

Regarding claim 8, Calderon discloses the injection of an oxidant to gasify the hot char in the gasification vessel 47 through (downward directed) tuyeres 48 (See Col. 4, lines 65-67; Fig. 4).

Regarding claim 9, Calderon discloses a gasification vessel 47 equipped with tuyeres 48 for the injection of an oxidant (See Col. 4, lines 65-67; Fig. 4).

Regarding claim 10, Anwer discloses the use of a lock hoppers (and other means), operating to increase the pressure surrounding the coal for suitable introduction into the gasifier. The coal charge is at a pressure so as to avoid backflow of the gases (See Col. 10, lines 62-68; Col. 11, lines 1-4).

Regarding claim 19, Anwer et al., further discloses the process is conducted under pressure (See Col. 6, lines 64-65).

Regarding claim 20, Anwer et al. further discloses that the carbonaceous material is devolatized, carbonized and gasified (a combustion reaction) (See Col. 3, lines 10-15) and oxygen (and steam) support the reactions provided by line 65 for introduction into the vessel via lines 30, 32, 34 (See Col. 12, lines 29-30). Fig. 1 discloses that oxygen originates downstream from the vessel (See Fig. 1).

Regarding Claim 23, Anwer further discloses lock hoppers operating on a cycle to ensure continuous feed to the gasifier. In the first stage of the cycle, a lower valve is closed and the upper valve is opened to permit a charge of coal to enter the lock hopper. When the lock hopper is charged, and upper valve is closed, a gas is introduced to increase the pressure, and the charge is then dropped through the bottom of the hopper. (See Col. 11, lines 5-15).

Regarding claim 24, Anwer et al., further discloses that the reaction is conducted under pressure and the resulting gas has superficial velocity (pressurized) and the process is done under selective operating conditions (See Col. 7, lines 9-15 and Col. 8, lines 29-38). One skilled in the art would readily glean from disclosure in Anwer et al., that selectively controlling the pressure conditions in the gasification process would prevent product gas contamination.

Regarding claim 27, Calderon discloses a gasification vessel 47 equipped with tuyeres 48 for the injection of an oxidant (See Col. 65-66). Figure 4 discloses that there are several tuyeres 48 for injection at several points of the gasifier 47.

Regarding claim 28, Anwer et al., discloses introducing additional increments of oxygen-containing gas thus increasing the temperature. This occurs prior to the product gas entering a desulfurization zone (See Claims 1 and 16).

Regarding claim 29, Calderon discloses that oxidant is added in a gasification vessel 57 via compressed air to produce a lean gas (See Col 5, lines 1-3). This step occurs prior to the lean gas passes through contactor 55 with sorbent 57 (which contains a desulferizing agent (See Col. 5, lines 18-22).

Regarding claim 30, Calderon discloses a system for hot gas clean up, two columns provided; column 70 to be used for absorption and column 71 to be used for regeneration (See Fig. 6; Col. 5, lines 55-65) which includes a sorbent 57 that is used as a desulfurizing agent (See Col. 5, line 21).

Regarding claim 31, Calderon discloses a system for hot gas clean up, two columns provided; column 70 to be used for absorption and column 71 to be used for regeneration (See Fig. 6; Col. 5, lines 55-65) which includes a sorbent 57 that is used as a desulfurizing agent (See Col. 5, line 21).

Regarding claim 32, Calderon discloses the tapering of the reactor chamber to diverge toward the discharging end (See Fig 4).

Regarding claim 38, Anwer et al., further discloses that the reaction is conducted under pressure and the resulting gas has superficial velocity (pressurized) and the process is done under selective operating conditions (See Col. 7, lines 9-15 and Col. 8, lines 29-38). One skilled in the art would readily glean from disclosure in Anwer et al.,

that selectively controlling the pressure conditions in the gasification process would prevent product gas contamination.

Regarding claim 39, Calderon further discloses that the lean gas can be used in turbines to generate electrical power and the syn gas (rich gas) can be converted to a marketable chemical (See Claim 1).

Regarding claim 40, Calderon further discloses that the char is gasified in a vessel 47 with pure oxygen (See Col 4, lines 60-67). One skilled in the art would readily understand that gasifying the char with pure oxygen would yield a hydrogen rich gas which after clean up can be processed into a hydrogen rich gas or fuel.

Regarding claim 41, Calderon further discloses that the char is gasified with air (See Col 4, lines 60-67) to yield a lean gas. Calderon further discloses that lean gas combustion minimizes NO_x because it burns cooler (See Col 6, lines 53-57).

Regarding claim 42, Anwer et al., discloses introducing oxygen-containing gas with up to about 50 percent (vol.) of steam (See Col. 22 lines 10-57).

2. Claims 11, 12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732, in view of Anwer et al.'272, as applied to claim 1 and in further view of Tanca U.S Patent No. 4,445,441 ('441).

Regarding claim 11, Calderon in view of Anwer et al., discloses all of the claim limitations as set forth above, but the references do not disclose the step wherein flowing raw fuel gas together with molten slag through a common port of said gasifier includes the step of providing supplementary thermal energy to prevent solidification of the molten slag in said port. Tanca discloses forcing a portion of the product gases in

the reactor to back flow through the slagging tap 4 so that the heat will ensure continuous slagging. The portion of the product gases back-flowing through the slag tap and maintain temperature elevation of the slag (thus providing supplemental thermal energy) which will prevent its solidification (See Col. 2, lines 53-64). It would have been obvious to one of ordinary skill in the coal gasification art to further modify the combination of Calderon and Anwer et al. to include the back-flowing of gases through the molten slag and thus provide supplemental thermal energy in order to prevent solidification of the molten slag exiting the gasification vessel as disclosed in Tanca.

Regarding claim 12, Calderon in view of Anwer et al., and further in view of Tanca discloses all of the claim limitations as set forth above. Tanca further discloses fuel, oxidant, and other reactants are fed sub-stoichiometrically to a reactor vessel 1 where the desired product gas is produced (the oxidant fed in the reactor vessel would combust a portion of the product gas because of the heating conditions of the reactor vessel) (See Col. 2, lines 32-44). Furthermore, Calderon discloses a plurality of tuyeres 48 for injection of an oxidant into the gasifier 47 (See Col. 4, lines 65-67). It would have been obvious to one of ordinary skill in the coal gasification art to further modify the combination of Calderon and Anwer et al. gasification vessel with the process disclosed in Tanca to provide an oxidant injection means to combust a portion of the product gas to create supplemental thermal energy. As stated above, oxygen fed into the gasification vessel would naturally combust a portion of the product.

Regarding claim 14, Calderon in view of Anwer et al., discloses all of the claim limitations as set forth above. The references do not disclose the step of flowing the raw

second gas together with the molten slag through a common port out of said gasifier includes collecting the molten slag in a receiver to serve as a molten bath. Tanca discloses forcing a portion product gas through slagging tap 4 with slag (See Col. 2, lines 40-43 and 52-55). It would have been obvious to one skilled in the coal gasification art to modify the combination of Calderon and Anwer et al., with Tanca to provide a gasification vessel that flows the product gas with the molten slag through the same port. The motivation for doing so would have been for the purpose of maintain temperature of the slag with the product gases to prevent solidification of slag (See Col. 2 lines 45-63; Fig. 1).

Regarding Claim 15, Tanca further discloses the product gases 3 and slag passing together to water quench tank 5 (See Col. 2, lines 37-44; Fig. 1).

Regarding Claim 16, Tanca further discloses a gas exit port 8 above the water quench tank 5 (See Fig. 1).

Regarding Claim 17, Calderon further discloses a slag discharge nozzle 49 and a slag quenching hopper 50 which is connected to a slag lockhopper 51 that acts as a spillway for the molten slag to flow out from the quenching hopper 50 (See Col. 4, lines 65-68; Fig. 4).

3. Claims 13, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732 in view of Anwer et al.'272, as applied to claim 1 and in further view of Tanca as applied to claim 11 and further in view of Calderon, U.S. Patent No. 5,136,808 ('808).

Regarding claim 13, Calderon in view of Anwer et al., and in further view of Tanca discloses all of the as set forth above. The references however, do not disclose wherein providing supplemental energy to prevent solidification of the molten slag is derived from electrical induction means. Calderon '808 discloses means for providing heat providing heat to prevent the solidification of slag includes an electric induction coil (See Col. 6, claims 1 and 8). It would have been obvious to one of ordinary skill in the art to further modify the combination of Calderon '732 and Anwer et al.'272, by including a gasification apparatus, disclosing a heating means, such as that of Calderon '808 in order to prevent solidification of slag.

Regarding claim 25, Calderon '808 discloses means for providing heat to prevent the solidification of slag includes an electric induction coil (See Col. 6, claims 1 and 8). Further disclosed is a hot radiant means which is connected to the quench hopper and would serve to heat the hopper when in operation (See Fig. 2).

Regarding claim 26, Calderon '808 discloses means for providing heat to prevent the solidification of slag includes an electric induction coil (See Col. 6, claims 1 and 8). Further disclosed is a hot radiant means which is connected to the quench hopper and would serve to heat the hopper when in operation (See Fig. 2).

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon in view of Anwer et al., in further view of Tanca, and further in view of Kawai et al.

Regarding claim 18, Calderon '732 in view of Anwer et al.'272, and in further view of Tanca '441, discloses all of the claim limitations as set forth above. The

references do not disclose providing a water-quenching chamber to cool the molten slag to a non-leaching solid. Kawai et al., U.S. Patent No. 2,971,830 ('830), discloses a fractured slag falling into water 26 in a vessel, and being further cooled (See Col. 6, lines 2-4; Fig. 1). It would have been obvious to one of ordinary skill in the art to further modify the combination of Calderon '732, Anwer et al.'272, and Tanca '441 to include slag falling into water 26 in a vessel and being further cooled disclosed by Kawai et al. '830. The motivation for doing so would have been for the purpose of easy conveyance of the cooled and solidified slag after discharge (See col 2, lines 26-28 of Kawai et al.).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732 in view of Anwer et al. as applied to claim 20 as set forth above, and in further view of Calderon et al., U.S. Patent No. 6,409,790 ('790).

Regarding Claim 21, Calderon '732 in view of Anwer et al.'272, discloses all of the claim limitations as set forth above. The references do not disclose a hot radiant zone disposed to said compartment to reflect intense thermal energy against coal in the discharging end of said chamber to expedite devolatilization of the coal. Calderon et al., U.S. Patent No. 6,409,790 ('790) discloses a mixture advanced in chamber 28 of reactor 10, is heated by any of the following manners of heating; namely, radiation, conduction, convection or any combination of these systems to cause the evolution of gases from the coal with the imperviousness of the mixture forcing the gases to flow within chamber 28 towards discharging end 20 and a portion of these gases is combusted at the discharging end to provide a highly radiant zone to reflect intensive thermal energy to the mixture to heat the mixture. (See Col. 6, lines 23-32). It would

have been obvious to one of ordinary skill in the art to modify the combination of Calderon '732 in view of Anwer et al., to include the discharging end of the chamber providing a radiant zone to reflect thermal energy of Calderon et al. '790, in order to support evolution (devolatilization) of coal gases. (See Col. 6, lines 23-32).

6. Claims 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732 in view of Anwer et al. as applied to claim 1 as set forth above, and in further view of Kevorkian et al., U.S. Patent No. 3,976,548 ('548).

Regarding Claim 22, Calderon '732 in view of Anwer et al. discloses all of the claim limitations as set forth above (See Claim 1 rejection). The references do not disclose circumferential heating of a coal mass from the direction of the wall of said chamber. Kevorkian et al. discloses a barrel 26 provided with circumferential heating coils 68 (See Col. 3, lines 59-61; Fig. 2). It would have been obvious to one of ordinary skill in the art to modify the combination of Calderon in view of Anwer et al., to include the barrel providing circumferential heating coils to assist in the heating of the coal (See Col. 3, lines 59-64) prior to directing the resulting char to the gasifier.

Regarding Claim 33, Calderon '732 in view of Anwer et al. discloses all of the claim limitations as set forth above (See Claim 1 rejection). Kevorkian '548 further discloses that a superheated steam jacket could be provided around the barrel 26 to assist in the circumferential and indirect heating of the coal in the barrel 26. Kevorkian also discloses circumferential heating coils 68 arrange around the barrel 26 (See Col. 3, lines 57-68). One skilled in the art would understand from the disclosure that a hot gas

(steam or the like) could be circulated around the barrel in the heating coils to assist the heating of the coal.

7. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732 in view of Anwer et al., as applied to claim 1 and in further view of Paisley, U.S. Patent No. 5,494,653 ('653).

Regarding Claims 34 and 35, Calderon '732 in view of Anwer et al. discloses all of the claim limitations as set forth above (See Claim 1 rejection). The references do not disclose the addition of biomass or waste to the coal for processing in unison. Paisley '653 discloses synthesis gas produced from an indirectly fired gasification process and further discloses that almost any carbonaceous feedstock to the gasifier is useful with the present invention. Examples of useful feedstocks disclosed include coal, lignite, peat, municipal waste, wood, energy plantation crops, agricultural and forestry residues, and the like (See Col 3, lines 10-20). One skilled in the art would readily understand that feedstocks can include coal and waste or biomass together and it would have been obvious to combine the combination of Calderon '732 and Anwer et al., with Paisley for the purpose of using additional feedstock materials for fueling the process. Paisley further suggests the motivation by the inherent reactivity of the biomass (or waste) which would be readily adapted to the gasification reactor system such as the fluid bed disclosed in Anwer et al. (See Col. 3, lines 17-24).

8. Claims 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732 in view of Anwer et al.'272, and in further view of Gorbaty, U.S. Patent No. 4,113,615 ('615).

Regarding claim 43, Calderon discloses a process for producing energy from coal comprising: delivering coal via a packing ram 37 to an accumulator (chamber) 38 where pyrolysis tubes 40 are charged with coal and heated to drive volatile matter out of the coal; the volatile matter (a rich gas) is collected and residual char remaining after the pyrolysis of the coal is discharged into a gasification vessel 47 where gasification vessel 47 receives a supply of an oxidant through tuyeres 48 to gasify the residual char, and slag is discharged through a nozzle 49; a duct 52 is provided to collect the gas produced from the gasification of char, which is known as a lean gas; the lean gas is passed through a cyclone 53 which serves to remove particulate matter (such as slag, a resulting product of gasifying the char, thus the lean gas and slag flow out of the gasification vessel through a common port) from the lean gas prior to its clean up; the rich gas from duct 44 enters a cracker 56 which serves to crack and desulfurize the rich gas to yield a clean syngas (See Col. 4, lines 33 – 68 and Col. 5, lines 1-41; Figs. 4 and 5).

Calderon, however, does not disclose injecting essentially pure oxygen in such a way as to combust a portion of the coal while maintaining a pressurized reducing atmosphere to yield a rich gas. Calderon discloses the use of pyrolysis to thermally volatize the coal to make a rich gas (See Col. 3, lines 42-42). Anwer et al., discloses a process for gasifying carbonaceous material under selective conditions to produce a gaseous product rich in carbon monoxide and hydrogen (a rich gas) comprising introducing in the gasifier particulate carbonaceous material at a pressure above the pressure of the gasifier, introducing oxygen-containing gas with up to about 50 percent

(vol.) of steam, gasifying the carbonaceous material to produce a gaseous reaction product in conjunction with spent char (See Col. 22 lines 10-57). Anwer et al., further discloses the reaction in the gasifier are advantageously conducted under pressure (See Col. 6, lines 64-68). The raw product gas resulting from the gasification reaction has a superficial velocity (thus pressurized), as a function of operating pressure (See Col. 8, lines 29-38).

The references do not disclose separating the rich cracked gas from coke (or char) to yield coke (or char) usable in the field of metallurgy. Gorbaty '615 discloses the carbonaceous product resulting from the thermal processing of coal (gasification) in those cases where the coal is not completely consumed or converted, exhibit adsorption properties similar to commercially available activated carbon and suggests that these chars may be used to treat waste water (See Col. 1, lines 54-67). Accordingly, at the time of the invention, it would have be obvious to a person of ordinary skill in the art to modify Calderon '732 by substituting the coal pyrolysis reaction to make a rich gas and char with the step of partial combustion of coal with oxygen under pressure as disclosed in Anwer et al., for the same purpose to producing a rich gas and char. It would have be further obvious to modify the combination of Calderon '732 and Anwer et al., with Gorbaty for the purpose of using the spent char (coke) in the field of metallurgy instead of gasification of the char. Gorbaty '615 suggests the motivation to combine because one skilled in the art would readily recognize the properties of the char are similar to commercially available activated carbon (thus useful in the metallurgy field) and such

product would enhance the economics of the gasification process (See Col. 2, lines 1-10).

9. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderon '732 in view of Anwer et al., and in further view of Gorbaty '615, and further in view of Gorbaty et al., U.S. Patent No. 4,113,602 ('602).

Regarding claim 37, Calderon '732 in view of Anwer et al., and in further view of Gorbaty '615, discloses all of the limitations as set forth above. The references do not disclose the use of coke (char) residue to be converted to activated carbon in a coal gasification process. Gorbaty et al. '602 discloses that coke produced can be used as a source of activated carbon (See Col. 2, lines 3-6). It would have been obvious to one skilled in the art to combine the combination of Calderon '732, Anwer et al., and Gorbaty '615, with Gorbaty et al. '602 for the purpose of using the coke (char) product resulting from the coal gasification process to be converted to activated carbon. Gorbaty et al. '602 suggests the use of coke resulting from a coal gasification process to be used as a source for activated carbon (See Col. 2, lines 3-6).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinit H. Patel whose telephone number is (571) 272-0856. The examiner can normally be reached Monday – Friday from 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached at (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa Doroshenk
Patent Examiner
Art Unit 1764

vhp
September 20, 2004